AMENDMENTS TO THE CLAIMS

Claims 1-17 canceled

18.   (New) A method of generating a sequence of waveforms, wherein:

the waveforms are generated at timings corresponding to pulses in a primary sequence having a narrow autocorrelation sequence, said pulses being arranged in packets of predetermined configuration with gaps between the packets, and the timings of the pulses within each packet being such that each packet has a narrow autocorrelation sequence;

and wherein each waveform is randomly selected from a set of waveforms with respective predetermined characteristics.

19.   (New) A method as claimed in claim 18, wherein successive pulse packets are randomly selected from a predetermined set of pulse packets.

20.   (New) A method as claimed in claim 18, wherein the gaps between pulse packets are of randomly-selected length.

21.   (New) A method as claimed in claim 18, wherein the minimum gap between adjacent pulses in a packet exceeds a predetermined value, whereby the autocorrelation sequence of the packet exhibits a zero value for consecutive relative shifts which do not exceed a predetermined limit.

22.   (New) A method as claimed in claim 18, in which the waveforms of said set are substantially mutually orthogonal.

23.   (New) A method as claimed in claim 18, wherein the waveforms have respective different frequencies.

24.   A method of generating a sequence of waveforms, each waveform being generated at a liming corresponding to that of a respective symbol in a primary sequence having a narrow autocorrelation sequence, the primary symbol sequence including symbols of a plurality of types, wherein each waveform is randomly selected from one of a plurality of sets of waveforms having respective predetermined characteristics, the set from which the waveform is selected being dependent on the type of the respective symbol.

25.   (New) A method as claimed in claim 24, in which the primary symbol sequence comprises a first pulse sequence interleaved with a second pulse sequence which is a time-reversed replica of the first pulse sequence, at least a substantial number of the waveforms corresponding to each pulse sequence being distinguishable from those corresponding to the other pulse sequence.

26.   (New) A method of generating a sequence of waveforms, the waveforms being generated at timings corresponding to symbols in a primary sequence having a narrow autocorrelation function, wherein each waveform is randomly selected from a set of waveforms with respective predetermined characteristics.

27.   (New) A method of detecting an object, the method comprising transmitting a sequence of waveforms generated using a method as claimed in claim 26, receiving reflections of

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the transmitted waveforms and determining matches between the transmitted and received

waveforms,

28.   (New) A method as claimed in claim 27, wherein the transmitted waveforms are

selected from sets each corresponding to a respective symbol type in the primary symbol sequence,

the method including decoding the received waveforms to obtain a received symbol sequence and

cross-correlating the primary symbol sequence with the received symbol sequence to determine

matches between the transmitted and received waveforms.

29.   (New) A method as claimed in claim 27, including the step of storing data

indicating which waveforms have been randomly selected, and using the stored data to

determine matches between the transmitted and received waveforms.

30.   (New) Apparatus for generating a sequence of waveforms, the apparatus being

arranged to operate in accordance with a method as claimed in 18.

31.   (New) Obstacle-detection apparatus for use in a multi-user environment, the

apparatus being arranged to operate in accordance with a method as claimed in claim 27.

32.   (New) Obstacle-detection apparatus as claimed in claim 31, including means for

providing a signal indicative of the range of a detected object.

33.   (New) Obstacle-detection apparatus as claimed in claim 31 for use in a vehicle or

vessel to detect potential collisions.

34.   (New) A collision-warning system for a vehicle or vessel, the system

comprising an obstacle-detection apparatus as claimed in claim 33 and means for generating a

warning signal in response to obstacle detection.

35.   (New) A ranging aid for a vehicle or vessel, the system comprising an

obstacle-detection apparatus as claimed in claim 33 and means for generating a signal

indicative of the range of a detected obstacle.